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# ENERGY AND SUSTAINABILITY 2014

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## OVERVIEW

The 5th International Conference on Energy and Sustainability took place in Putrajaya near Kuala Lumpur, Malaysia, organised by the Wessex Institute of Technology, represented by Professor Carlos Brebbia; Malaysia Research and Education Network (MYREN), represented by Professor Hussain Al-Kayiem of Universiti Teknologi Petronas and the Universiti Teknologi Mara, represented by Professor Syed Zubir.

The Meeting follows the very successful conference series which started in the New Forest (UK), home of the Wessex Institute in 2007 and continued in Bologna (2009); Alicante (2011); and Bucharest (2013).

The Conference reconvened to discuss the challenges affecting the modern world in the field of energy. Modern society is highly dependent on the exploitation of fossil fuels. Depletion of resources and environmental effects resulting from the continuous use of those fuels has resulted in an increasing amount of interest in renewable energy resources and the need for sustainable energy policies.

The changes required to progress from an economy mainly based on hydrocarbons to one taking advantage of sustainable energy resources are massive and require a substantial amount of scientific research, as well as the development of new engineering systems and technologies. The effort also involves collaboration across different disciplines in order to arrive at optimum solutions, including building, energy networks, transportation systems, energy storage solutions, conversion and recovery energy solutions, and many others.

## OPENING OF THE CONFERENCE

The Conference was opened by Ms Liana Jaganatham, Programme Manager for MYREN which is part of the Ministry of Education and Sponsor of the Conference. She explained the objectives of her programme and the advances made in Research and Education in Malaysia. The programme also covers networks supporting the whole country. She ended by describing some of the future projects.

Professor Al-Kayiem, Co-Chair of the Conference referred to the importance of the work carried out at conferences and, in particular, those organised by WIT, which help to bring people together in a friendly environment.

Professor Carlos A. Brebbia then described the work done at the Wessex Institute of Technology. WIT, Carlos said, is fundamentally an organisation dedicated to the transfer of knowledge. This is carried out by means of a variety of activities, including conferences, seminars and courses.

An important part of WIT activities relate to provision of knowledge and services to industry. The Institute has developed over many years computer software packages based on their own research on Boundary Element Methods. These codes are now used by many companies around the world, particularly in the energy and aerospace field.



Delegates at the conference

WIT Press, the publishing arm of the Institute, provides also a mechanism to disseminate knowledge. The organisation publishes a series of books and journals in digital and paper format. They are distributed throughout the world by a substantial number of representatives and agents.

Carlos ended by pointing out that the Institute aims to continuously improve the infrastructure of its Campus; which is located in the New Forest National Park in the South of England.

## KEYNOTE AND INVITED PRESENTATIONS

The Conference Programme included a number of invited presentations by well known colleagues, as follows:

“Synthesis of novel catalysts for hydrodeoxygenation of bio-oil: Guaiacol as a model component” **Nader Mahinpey**, Calgary University, Canada

“Sustaining thermal power plant production in low water supply regions using cooling towers” **Hussein Al-Kayiem**, Universiti Teknologi Petronas, Malaysia

“Dry reforming of methane under an electro-catalytic bed: Effect of electrical current and catalyst composition” **Jean-Michel Lavoie**, Université de Sherbrooke, Canada

“Sustainable space optimization and function versatility through mass displacement” **Syed Zubir**, Universiti Teknologi Mara, Malaysia

“Increasing the selectivity of the hydrocarbon feedstock pyrolysis” **Elena Magaril**, Ural Federal University, Russia

“Cost-benefit analysis of living wall systems on school building skins in hot climate” **Mahmoud Haggag**, UAE University, United Arab Emirates.

## CONFERENCE TOPICS

The papers were grouped into a series of sessions, as follows:

- Biofuels
- Energy policies
- Sustainable energy production
- Green buildings
- Energy and transportation
- CO<sub>2</sub> capture and management
- Energy storage
- Environmental risk management
- Processing of oil and gas
- Energy from waste
- Drilling and well design
- Pipelines
- Energy efficiency

## CONFERENCE DINNER

The International Scientific Advisory Committee met over an excellent dinner hosted by Professor Hussain Al-Kayiem to discuss the way in which the meeting could be improved. The discussions centred on the topics covered and in particular the challenge resulting from the recent fall in the price of oil and gas. These changes will have a profound impact on some renewable resources systems and new hydrocarbons extraction methods such as fracking with consequent new policies. The Committee also discussed the need to appoint new members.



The ISAC members meet over dinner



Group of delegates outside the boat that was used for the conference banquet

During the Meeting the soon to be launched International Journal of Energy Production and Management was also discussed. The importance of an early announcement is crucial to the future of the Journal, as well as to attract papers by well known colleagues. This will accelerate the inclusion of the Journal in the search engines and appropriate databases.

The Conference Banquet took place on board a boat that sailed along the Putrajaya Lake while a guide explained the different buildings along the way. The new governmental capital of Malaysia has been a major undertaking with a diversity of building styles for the different ministries and state departments. It has several large mosques and malls and an ever-expanding number of residential areas. The first buildings were inaugurated as recently as 2001 but the city is now full of many impressive buildings and has an excellent road and bridge system, together with a fast train link to Kuala Lumpur.

The excellent Malaysian food served during the trip and the good company made this a unique occasion, helping the delegates to strengthen their links.

## **CLOSING OF THE CONFERENCE**

The Conference was characterised by its friendly atmosphere and the many contacts made by the delegates. As all WIT Conferences, it attracted participants from many different countries. It also included the presence of many young researchers, mostly recent PhD graduates, whose contributions presented new ideas and original applications.

The Conference was closed by Carlos who thanked the delegates for making Energy and Sustainability such a friendly and successful Conference.

He mentioned that the Conference papers are now archived in the Institute's eLibrary (<http://www.witpress.com/elibrary>) where they are accessible to the international community.

He reminded the presenters of the possibility of submitting extended versions of their papers to the International Journal of Energy Production and Management, the latest WIT Press Journal.

Carlos invited the delegates to visit the Campus of Wessex Institute in the New Forest, a National Park in the South of England, renowned for its beauty.

Finally, he thanked the Co-Chairmen, Syed and Hussain, for their commitment to the Conference and for making the Meeting such a success.

## CONFERENCE PROCEEDINGS

The proceedings of Energy and Sustainability 2014 (Print ISBN: 978-1-84564-837-4; eISBN: 978-1-84564-838-1) are available from WIT Press. Orders can be placed on the WIT Press web site at [www.witpress.com](http://www.witpress.com) or by email: [marketing@witpress.com](mailto:marketing@witpress.com), telephone: +44 (0) 238 029 3223 or fax: +44 (0) 238 029 2853.

Papers from the conference will also be hosted online at the WIT eLibrary as Volume 186 of WIT Transactions on the Ecology and the Environment (ISSN: 1746-448X, Digital ISSN 1743-3541). For more details visit the WIT eLibrary at <http://www.witpress.com/elibrary>

